

A

(

•

7

•

•

•

1

-9-

Sub A-1 106163554 1061601

3 receiving a carrier map from a remotely located system, the carrier map is  
4 produced at the system in response to conducting channel estimation analysis on the  
5 plurality of carriers to indicate which carriers are unreliable.

1 9. The method of claim 8, wherein the carrier map indicates which of the  
2 plurality of carriers is deemed to be in an unreliable state.

1 10. A multi-carrier modulation system comprising:  
2 a feedback link;  
3 a multiplexer unit coupled to the feedback link, the multiplexing unit, including  
4 input ports and output ports, to receive as input a transmission data and a random data  
5 and, for each output port, to transmit one of the transmission data and the random data  
6 based on information transmitted over the feedback link; and  
7 a modulator to modulate a non-data bearing carrier with the random data.

1 11. The multi-carrier modulation system of claim 10, wherein the modulator  
2 further outputs a multi-carrier modulated signal inclusive of the modulated, non-data  
3 bearing carrier.

1 12. The multi-carrier modulation system of claim 10, wherein the modulator  
2 to modulate a plurality of carriers that correspond in number to a number of output  
3 ports.

1 13. The multi-carrier modulation system of claim 11, wherein the modulator  
2 modulates the non-data bearing carrier with the random data when the information  
3 indicates that the non-data bearing carrier is unreliable.

1 14. The multi-carrier modulation system of claim 13, wherein non-data  
2 bearing carrier is determined to be unreliable through prior analysis of the carrier at a  
3 receiver using channel estimation.

1 15. The multi-carrier modulation system of claim 10 further comprising a  
2 random bit generator coupled to a first input port of the input ports.

003927.P017

SUBMIT

1 16. The multi-carrier modulation system of claim 10 further comprising a  
2 pseudo-random bit generator coupled to a first input port of the input ports.

1 17. The multi-carrier modulation system of claim 10, wherein the modulator  
2 performs modulation in accordance with an Orthogonal Frequency Division  
3 Multiplexing (OFDM) modulation scheme.

1 18. The multi-carrier modulation system of claim 11, wherein the feedback  
2 link enables receipt of the information from a remotely located receiver system  
3 receiving the multi-carrier modulated signal.

1 19. A network comprising:  
2 a system coupled to a first link; and  
3 a first multi-carrier modulation (MCM) system in communication with the  
4 network transceiver over a second link, the first MCM system to identify at least one  
5 carrier of a plurality of carriers is in a non-data bearing state based on feedback  
6 information provided by the system and to modulate the at least one non-data bearing  
7 carrier with random data.

1 20. The network of claim 19, wherein the first link is an Alternating Current  
2 (AC) power line.

1 21. The network of claim 20, wherein the system is a network transceiver  
2 for routing data over the AC power line.

1 22. The network of claim 19, wherein the system is a second multi-carrier  
2 modulation (MCM) system.

1 23. The network of claim 19, wherein the first MCM system comprises:  
2 a multiplexer unit in communication with the system, the multiplexing unit,  
3 including input ports and output ports, to receive as input a transmission data and a  
4 random data and, for each output port, to transmit one of the transmission data and the  
5 random data based on the feedback information provided by the system; and

Sub A17

6 a modulator to modulate the at least one non-data bearing carrier with the  
7 random data

1 24. The network of claim 19, wherein the first MCM system is a modem.

1 25. The network of claim 19, wherein the first MCM system is a computer  
2 with wireless connectivity.

1 26. A computer program embodied in internal memory and executable by a  
2 processing unit, comprising:

3 a first software module to identify at least one carrier of a plurality of carriers  
4 associated with a transmit signal is in a non-data bearing state; and

5 a second module to modulate the at least one non-data bearing carrier with  
6 random data.

1 27. The computer program of claim 26, wherein the at least one non-data  
2 bearing carrier is a pilot tone.